



# CertyIQ

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CompTIA

# About CertyIQ

We here at CertyIQ eventually got enough of the industry's greedy exam paid for. Our team of IT professionals comes with years of experience in the IT industry Prior to training CertyIQ we worked in test areas where we observed the horrors of the paywall exam preparation system.

The misuse of the preparation system has left our team disillusioned. And for that reason, we decided it was time to make a difference. We had to make In this way, CertyIQ was created to provide quality materials without stealing from everyday people who are trying to make a living.

## Doubt Support

We have developed a very scalable solution using which we are able to solve 400+ doubts every single day with an average rating of 4.8 out of 5.

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John

October 19, 2022



Thanks you so much for your help. I scored 972 in my exam today. More than 90% were from your PDFs!

October 22, 2022



Passed my exam today with 891 marks. Out of 52 questions, 51 were from certyiQ PDFs including Contoso case study. Thank You certyiQ team!

Dana

September 04, 2022



Thanks a lot for this updated AZ-900 Q&A. I just passed my exam and got 974, I followed both of your Az-900 videos and the 6 PDF, the PDFs are very much valid, all answers are correct. Could you please create a similar video/PDF for DP900, your content/PDF's is really awesome. The team did a really good job. Thank You 😊.

Henry Rome

2 months ago



These questions are real and 100 % valid. Thank you so much for your efforts, also your 4 PDFs are awesome, I passed the DP900 exam on 1 Sept. With 968 marks. Thanks a lot, buddy!

Esmaria

2 months ago



Simple easy to understand explanations. To anyone out there wanting to write AZ900, I highly recommend 6 PDF's. Thank you so much, appreciate all your hard work in having such great content. Passed my exam Today - 3 September with 942 score.

Ahamed Shibly

2 months ago



Customer support is really fast and helpful, I just finished my exam and this video along with the 6 PDF helped me pass! Definitely recommend getting the PDFs. Thank you!



(AI-900)

Microsoft Azure AI Fundamentals

Total: **246 Questions**

Link: <https://certiq.com/papers?provider=microsoft&exam=ai-900>

**Question: 1**

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A company employs a team of customer service agents to provide telephone and email support to customers. The company develops a webchat bot to provide automated answers to common customer queries. Which business benefit should the company expect as a result of creating the webchat bot solution?

- A. increased sales
- B. a reduced workload for the customer service agents
- C. improved product reliability

**Answer: B****Explanation:**

Correct answer is B: a reduced workload for the customer service agents.

**Question: 2**

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For a machine learning progress, how should you split data for training and evaluation?

- A. Use features for training and labels for evaluation.
- B. Randomly split the data into rows for training and rows for evaluation.
- C. Use labels for training and features for evaluation.
- D. Randomly split the data into columns for training and columns for evaluation.

**Answer: B****Explanation:**

You split rows not columns:

The Split Data module is particularly useful when you need to separate data into training and testing sets. Use the Split Rows option if you want to divide the data into two parts. You can specify the percentage of data to put in each split, but by default, the data is divided 50-50. You can also randomize the selection of rows in each group, and use stratified sampling.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/split-data>

**Question: 3**

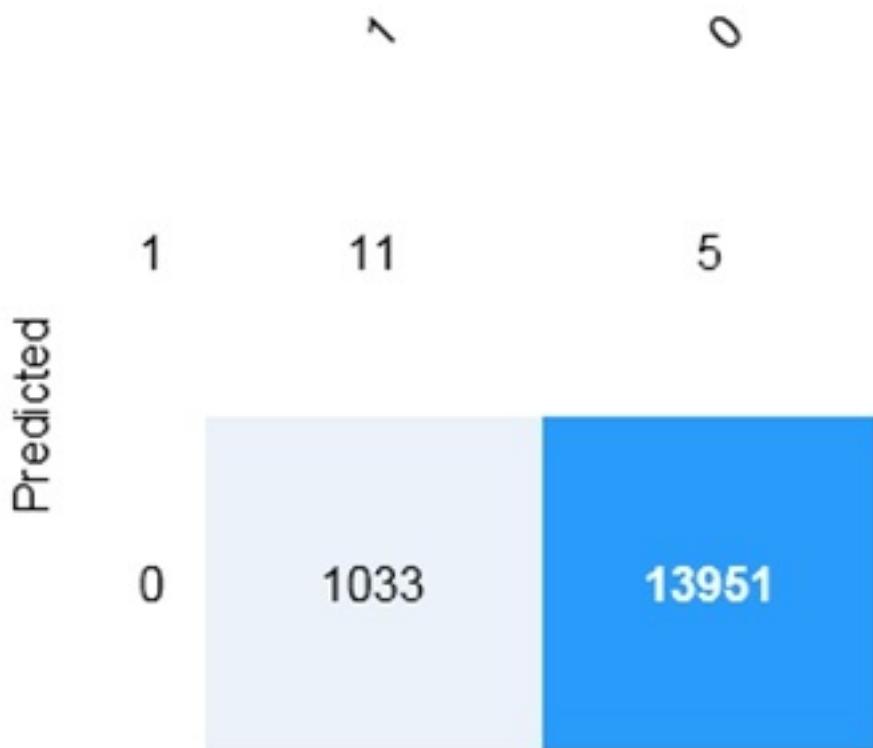
CertyIQ

HOTSPOT -

You are developing a model to predict events by using classification.

You have a confusion matrix for the model scored on test data as shown in the following exhibit.

Actual



Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the graphic.

NOTE: Each correct selection is worth one point.

Hot Area:

### Answer Area

There are **[answer choice]** correctly predicted positives.

▼

5
11
1,033
13,951

There are **[answer choice]** false negatives.

▼

5
11
1,033
13,951

Answer:

## Answer Area

There are [answer choice] correctly predicted positives.

5
11
1,033
13,951

There are [answer choice] false negatives.

5
11
1,033
13,951

### Explanation:

Box 1: 11 -

		Predicted	
		Positive	Negative
Actual True	TP	FN	
	FP	TN	

TP = True Positive.

The class labels in the training set can take on only two possible values, which we usually refer to as positive or negative. The positive and negative instances that a classifier predicts correctly are called true positives (TP) and true negatives (TN), respectively. Similarly, the incorrectly classified instances are called false positives (FP) and false negatives (FN).

Box 2: 1,033 -

FN = False Negative -

### Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio/evaluate-model-performance>

## Question: 4

You build a machine learning model by using the automated machine learning user interface (UI).

You need to ensure that the model meets the Microsoft transparency principle for responsible AI. What should you do?

- A. Set Validation type to Auto.
- B. Enable Explain best model.
- C. Set Primary metric to accuracy.
- D. Set Max concurrent iterations to 0.

**Answer: B**

**Explanation:**

Model Explain Ability.

Most businesses run on trust and being able to open the ML black box helps build transparency and trust. In heavily regulated industries like healthcare and banking, it is critical to comply with regulations and best practices. One key aspect of this is understanding the relationship between input variables (features) and model output. Knowing both the magnitude and direction of the impact each feature (feature importance) has on the predicted value helps better understand and explain the model. With model explainability, we enable you to understand feature importance as part of automated ML runs.

Reference:

<https://azure.microsoft.com/en-us/blog/new-automated-machine-learning-capabilities-in-azure-machine-learning-service/>

**Question: 5**

**CertyIQ**

HOTSPOT -

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

Statements	Yes	No
Forecasting housing prices based on historical data is an example of anomaly detection.	<input type="radio"/>	<input type="radio"/>
Identifying suspicious sign-ins by looking for deviations from usual patterns is an example of anomaly detection.	<input type="radio"/>	<input type="radio"/>
Predicting whether a patient will develop diabetes based on the patient's medical history is an example of anomaly detection.	<input type="radio"/>	<input type="radio"/>

**Answer:**

## Answer Area

Statements	Yes	No
Forecasting housing prices based on historical data is an example of anomaly detection.	<input type="radio"/>	<input checked="" type="radio"/>
Identifying suspicious sign-ins by looking for deviations from usual patterns is an example of anomaly detection.	<input checked="" type="radio"/>	<input type="radio"/>
Predicting whether a patient will develop diabetes based on the patient's medical history is an example of anomaly detection.	<input type="radio"/>	<input checked="" type="radio"/>

### Explanation:

A - Regression

B - Anomaly

C - Classification

Anomaly detection encompasses many important tasks in machine learning:

Identifying transactions that are potentially fraudulent.

Learning patterns that indicate that a network intrusion has occurred.

Finding abnormal clusters of patients.

Checking values entered into a system.

### Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/anomaly-detection>

## Question: 6

CertyIQ

HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

## Answer Area

The handling of unusual or missing values provided to an AI system is a consideration for the Microsoft   principle for responsible AI.

- inclusiveness
- privacy and security
- reliability and safety
- transparency

**Answer:**

## Answer Area

The handling of unusual or missing values provided to an AI system is a consideration for the Microsoft principle for responsible AI.

inclusiveness
privacy and security
reliability and safety
transparency

### Explanation:

Reliability and safety:

AI systems need to be reliable and safe in order to be trusted. It is important for a system to perform as it was originally designed and for it to respond safely to new situations. Its inherent resilience should resist intended or unintended manipulation. Rigorous testing and validation should be established for operating conditions to ensure that the system responds safely to edge cases, and A/B testing and champion/challenger methods should be integrated into the evaluation process.

An AI system's performance can degrade over time, so a robust monitoring and model tracking process needs to be established to reactively and proactively measure the model's performance and retrain it, as necessary, to modernize it.

Reference:

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai>

## Question: 7

CertyIQ

DRAG DROP -

Match the types of AI workloads to the appropriate scenarios.

To answer, drag the appropriate workload type from the column on the left to its scenario on the right. Each workload type may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.

Select and Place:

### Workloads Types

Anomaly detection

Computer vision

Conversational AI

Knowledge mining

Natural language processing

### Answer Area

Workload Type

An automated chat to answer questions about refunds and exchange

Workload Type

Determining whether a photo contains a person

Workload Type

Determining whether a review is positive or negative

**Answer:**

Workloads Types	Answer Area
Anomaly detection	Conversational AI
Computer vision	Computer vision
Conversational AI	Natural language processing
Knowledge mining	
Natural language processing	

### Explanation:

Box 3: Natural language processing

Natural language processing (NLP) is used for tasks such as sentiment analysis, topic detection, language detection, key phrase extraction, and document categorization.

### What is Natural Language Processing?

Natural language processing (NLP) is the area of AI that deals with creating software that understands written and spoken language.

NLP enables you to create software that can:

- Analyze text documents to extract key phrases and recognize entities (such as places, dates, or people). ie Text Analytics service
- Perform sentiment analysis to determine how positive or negative the language used in a document is. ie Text Analytics service
- Interpret spoken language, and synthesize speech responses. ie Speech service(speech to text and text to speech)
- Automatically translate spoken or written phrases between languages. ie Text service(for text to text translation)/Speech service(for speech to text/speech translation)

Interpret commands and determine appropriate actions. ie Language Understanding(LUIS) service

Reference:

<https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/natural-language-processing>

### Question: 8

CertyIQ

You are designing an AI system that empowers everyone, including people who have hearing, visual, and other impairments.

This is an example of which Microsoft guiding principle for responsible AI?

- A. fairness
- B. inclusiveness
- C. reliability and safety
- D. accountability

**Answer: B****Explanation:**

Inclusiveness: At Microsoft, we firmly believe everyone should benefit from intelligent technology, meaning it must incorporate and address a broad range of human needs and experiences. For the 1 billion people with disabilities around the world, AI technologies can be a game-changer.

**Reference:**

<https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/4-guiding-principles>

**Question: 9****CertyIQ****DRAG DROP -**

Match the Microsoft guiding principles for responsible AI to the appropriate descriptions.

To answer, drag the appropriate principle from the column on the left to its description on the right. Each principle may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.

Select and Place:

Principles	Answer Area
Accountability	Principle      Ensure that AI systems operate as they were originally designed, respond to unanticipated conditions, and resist harmful manipulation.
Fairness	Principle      Implementing processes to ensure that decisions made by AI systems can be overridden by humans.
Inclusiveness	Principle      Provide consumers with information and controls over the collection, use, and storage of their data.
Privacy and security	
Reliability and safety	

**Answer:**

Principles	Answer Area
Accountability	Reliability and safety      Ensure that AI systems operate as they were originally designed, respond to unanticipated conditions, and resist harmful manipulation.
Fairness	Accountability      Implementing processes to ensure that decisions made by AI systems can be overridden by humans.
Inclusiveness	
Privacy and security	Privacy and security      Provide consumers with information and controls over the collection, use, and storage of their data.
Reliability and safety	

**Explanation:**

Box 1: Reliability and safety -

To build trust, it's critical that AI systems operate reliably, safely, and consistently under normal circumstances and in unexpected conditions. These systems should be able to operate as they were originally designed, respond safely to unanticipated conditions, and resist harmful manipulation.

Box 2: Accountability -

The people who design and deploy AI systems must be accountable for how their systems operate.

Organizations should draw upon industry standards to develop accountability norms. These norms can ensure that AI systems are not the final authority on any decision that impacts people's lives and that humans maintain meaningful control over otherwise highly autonomous AI systems.

#### Box 3: Privacy and security -

As AI becomes more prevalent, protecting privacy and securing important personal and business information is becoming more critical and complex. With AI, privacy and data security issues require especially close attention because access to data is essential for AI systems to make accurate and informed predictions and decisions about people. AI systems must comply with privacy laws that require transparency about the collection, use, and storage of data and mandate that consumers have appropriate controls to choose how their data is used

#### Reference:

<https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/4-guiding-principles>

### Question: 10

CertyIQ

#### HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

When developing an AI system for self-driving cars, the Microsoft for responsible AI should be applied to ensure consistent operation system during unexpected circumstances.

inclusiveness
accountability
reliability and safety
fairness

principle  
of the

#### Answer:

When developing an AI system for self-driving cars, the Microsoft for responsible AI should be applied to ensure consistent operation system during unexpected circumstances.

inclusiveness
accountability
reliability and safety
fairness

principle  
of the

#### Explanation:

Reliability and safety: To build trust, it's critical that AI systems operate reliably, safely, and consistently under normal circumstances and in unexpected conditions.

These systems should be able to operate as they were originally designed, respond safely to unanticipated conditions, and resist harmful manipulation.

#### Reference:

<https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/4-guiding-principles>

### Question: 11

CertyIQ

You are building an AI system.

Which task should you include to ensure that the service meets the Microsoft transparency principle for responsible AI?

- A. Ensure that all visuals have an associated text that can be read by a screen reader.
- B. Enable autoscaling to ensure that a service scales based on demand.

- C. Provide documentation to help developers debug code.
- D. Ensure that a training dataset is representative of the population.

**Answer: C**

**Explanation:**

Reference:

<https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/4-guiding-principles>

## Question: 12

CertyIQ

DRAG DROP -

Match the types of AI workloads to the appropriate scenarios.

To answer, drag the appropriate workload type from the column on the left to its scenario on the right. Each workload type may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.

Select and Place:

Workload Types	Answer Area
Anomaly detection	Workload Type
Computer vision	Workload Type
Machine Learning (Regression)	Workload Type
Natural language processing	Workload Type

Identify handwritten letters.  
Predict the sentiment of a social media post.  
Identify a fraudulent credit card payment.  
Predict next month's toy sales.

**Answer:**

Workload Types	Answer Area
Anomaly detection	Computer vision
Computer vision	Natural language processing
Machine Learning (Regression)	Anomaly detection
Natural language processing	Machine Learning (Regression)

Identify handwritten letters.  
Predict the sentiment of a social media post.  
Identify a fraudulent credit card payment.  
Predict next month's toy sales.

**Explanation:**

**Keywords:**

Computer vision = identify (object) letters

NLP = sentiment

Anomaly Detection = fraud

Machine Learning (regression) = predict

Reference:

**Question: 13**

Your company is exploring the use of voice recognition technologies in its smart home devices. The company wants to identify any barriers that might unintentionally leave out specific user groups. This is an example of which Microsoft guiding principle for responsible AI?

- A. accountability
- B. fairness
- C. inclusiveness
- D. privacy and security

**Answer: C**

**Explanation:**

C - Inclusiveness. No one is left out (disabled, gender, ethnicity, LGBTQIA+ etc etc)

Reference:

<https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/4-guiding-principles>

**Question: 14**

What are three Microsoft guiding principles for responsible AI? Each correct answer presents a complete solution.  
NOTE: Each correct selection is worth one point.

- A. knowledgeability
- B. decisiveness
- C. inclusiveness
- D. fairness
- E. opinionatedness
- F. reliability and safety

**Answer: CDF**

**Explanation:**

The six guiding principles are:

1. Fairness
2. Inclusiveness
3. Transparency
4. Privacy and Security
5. Reliability and Safety
6. Accountability

Reference:

**Question: 15**

HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

**Answer Area**

Returning a bounding box that indicates the location of a vehicle in an image is an example of

- image classification.
- object detection.
- optical character recognizer (OCR).
- semantic segmentation.

Answer:

**Answer Area**

Returning a bounding box that indicates the location of a vehicle in an image is an example of

- image classification.
- object detection.
- optical character recognizer (OCR).
- semantic segmentation.

**Explanation:**

Object detection is correct. Semantic segmentation can seem tempting at first but that is more about classifying individual pixels based on their objects

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/concept-object-detection>

**HOTSPOT -**

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

**Answer Area**

is used to generate additional features.

- Feature engineering
- Feature selection
- Model evaluation
- Model training

**Answer:****Answer Area**

is used to generate additional features.

- Feature engineering
- Feature selection
- Model evaluation
- Model training

**Explanation:****Answer is Feature Engineering.**

Explanation - feature engineering is applied first to generate additional features, and then feature selection is done to eliminate irrelevant, redundant, or highly correlated features.

**Reference:**

<https://docs.microsoft.com/en-us/azure/machine-learning/team-data-science-process/create-features>

You run a charity event that involves posting photos of people wearing sunglasses on Twitter.

You need to ensure that you only retweet photos that meet the following requirements:

- ⇒ Include one or more faces.
- ⇒ Contain at least one person wearing sunglasses.

What should you use to analyze the images?

- A. the Verify operation in the Face service
- B. the Detect operation in the Face service
- C. the Describe Image operation in the Computer Vision service
- D. the Analyze Image operation in the Computer Vision service

**Answer: B**

**Explanation:**

Face detect can be requested to detect also glasses attribute

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/face/overview>

## Question: 18

**CertyIQ**

When you design an AI system to assess whether loans should be approved, the factors used to make the decision should be explainable.

This is an example of which Microsoft guiding principle for responsible AI?

- A. transparency
- B. inclusiveness
- C. fairness
- D. privacy and security

**Answer: A**

**Explanation:**

Achieving transparency helps the team to understand the data and algorithms used to train the model, what transformation logic was applied to the data, the final model generated, and its associated assets. This information offers insights about how the model was created, which allows it to be reproduced in a transparent way.

Incorrect Answers:

B: Inclusiveness mandates that AI should consider all human races and experiences, and inclusive design practices can help developers to understand and address potential barriers that could unintentionally exclude people. Where possible, speech-to-text, text-to-speech, and visual recognition technology should be used to empower people with hearing, visual, and other impairments.

C: Fairness is a core ethical principle that all humans aim to understand and apply. This principle is even more important when AI systems are being developed.

Key checks and balances need to make sure that the system's decisions don't discriminate or run a gender, race, sexual orientation, or religion bias toward a group or individual.

D: A data holder is obligated to protect the data in an AI system, and privacy and security are an integral part of this system. Personal needs to be secured, and it should be accessed in a way that doesn't compromise an individual's privacy.

Reference:

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai> <https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/strategy/responsible-ai>

## Question: 19

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**HOTSPOT -**

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

Statements	Yes	No
Providing an explanation of the outcome of a credit loan application is an example of the Microsoft transparency principle for responsible AI.	<input type="radio"/>	<input type="radio"/>
A triage bot that prioritizes insurance claims based on injuries is an example of the Microsoft reliability and safety principle for responsible AI.	<input type="radio"/>	<input type="radio"/>
An AI solution that is offered at different prices for different sales territories is an example of the Microsoft inclusiveness principle for responsible AI.	<input type="radio"/>	<input type="radio"/>

**Answer:**

**Answer Area**

Statements	Yes	No
Providing an explanation of the outcome of a credit loan application is an example of the Microsoft transparency principle for responsible AI.	<input checked="" type="radio"/>	<input type="radio"/>
A triage bot that prioritizes insurance claims based on injuries is an example of the Microsoft reliability and safety principle for responsible AI.	<input type="radio"/>	<input checked="" type="radio"/>
An AI solution that is offered at different prices for different sales territories is an example of the Microsoft inclusiveness principle for responsible AI.	<input type="radio"/>	<input checked="" type="radio"/>

**Explanation:**

Box 1: Yes -

Achieving transparency helps the team to understand the data and algorithms used to train the model, what transformation logic was applied to the data, the final model generated, and its associated assets. This information offers insights about how the model was created, which allows it to be reproduced in a transparent way.

Box 2: No -

A data holder is obligated to protect the data in an AI system, and privacy and security are an integral part of this system. Personal needs to be secured, and it should be accessed in a way that doesn't compromise an individual's privacy.

Box 3: No -

Inclusiveness mandates that AI should consider all human races and experiences, and inclusive design practices can help developers to understand and address potential barriers that could unintentionally exclude people. Where possible, speech-to-text, text-to-speech, and visual recognition technology should be used to empower people with hearing, visual, and other impairments.

**Reference:**

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai>

## DRAG DROP -

Match the principles of responsible AI to appropriate requirements.

To answer, drag the appropriate principles from the column on the left to its requirement on the right. Each principle may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:

Principles	Answer Area
Fairness	The system must not discriminate based on gender, race
Privacy and security	Personal data must be visible only to approve
Reliability and safety	
Transparency	Automated decision-making processes must be recorded so that approved users can identify why a decision was made

## Answer:

Principles	Answer Area
Fairness	The system must not discriminate based on gender, race
Privacy and security	Personal data must be visible only to approve
Reliability and safety	
Transparency	Automated decision-making processes must be recorded so that approved users can identify why a decision was made

## Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai>

<https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/4-guiding-principles>

1. <https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai>

2. <https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/4-guiding-principles>

## Question: 21

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## DRAG DROP -

You plan to deploy an Azure Machine Learning model as a service that will be used by client applications.

Which three processes should you perform in sequence before you deploy the model? To answer, move the appropriate processes from the list of processes to the answer area and arrange them in the correct order.

Select and Place:

## Processes

## Answer Area

data encryption

model retraining

model training

data preparation

model evaluation



Answer:

## Processes

data encryption

model retraining

## Answer Area

data preparation

model training

model evaluation

Explanation:

Data Prep

Train Model

Evaluate Model

Reference:

**Question: 22**

You are building an AI-based app.

You need to ensure that the app uses the principles for responsible AI.

Which two principles should you follow? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- A. Implement an Agile software development methodology
- B. Implement a process of AI model validation as part of the software review process
- C. Establish a risk governance committee that includes members of the legal team, members of the risk management team, and a privacy officer
- D. Prevent the disclosure of the use of AI-based algorithms for automated decision making

**Answer: BC**

**Explanation:**

B ensures reliability and safety principle and C ensures privacy and security principle of AI.

**Reference:**

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai>  
<https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/3-implications-responsible-ai-practical>

**Question: 23**

HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

**Answer Area**

According to Microsoft's

	▼
accountability	
fairness	
inclusiveness	
transparency	

principle of responsible AI,

AI systems should **NOT** reflect biases from the data sets that are used to train the systems.

**Answer:**

## Answer Area

According to Microsoft's

accountability
fairness
inclusiveness
transparency

principle of responsible AI,

AI systems should **NOT** reflect biases from the data sets that are used to train the systems.

**Explanation:**

Reference:

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai>

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## Question: 24

HOTSPOT -

Select the answer that correctly completes the sentence.

Hot Area:

## Answer Area

According to Microsoft's

accountability
fairness
inclusiveness
transparency

principle of responsible AI,

AI systems should **NOT** reflect biases from the data sets that are used to train the systems.

**Answer:**

## Answer Area

According to Microsoft's

accountability
fairness
inclusiveness
transparency

principle of responsible AI,

AI systems should **NOT** reflect biases from the data sets that are used to train the systems.

**Explanation:**

Fairness is a core ethical principle that all humans aim to understand and apply. This principle is even more important when AI systems are being developed. Key checks and balances need to make sure that the system's decisions don't discriminate or run a gender, race, sexual orientation, or religion bias toward a group

or individual.

Reference:

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai>

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## Question: 25

DRAG DROP -

Match the types of AI workloads to the appropriate scenarios.

To answer, drag the appropriate workload type from the column on the left to its scenario on the right. Each workload type may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.

Select and Place:

Workload Types	Answer Area
Anomaly detection	Workload type
Computer vision	Workload type
Knowledge mining	Workload type
Natural language processing	Determining whether a review is positive or negative

## Answer:

Workload Types	Answer Area
Anomaly detection	Knowledge mining
Computer vision	Computer vision
Knowledge mining	Natural language processing
Natural language processing	An automated chatbot to answer questions about refunds and exchanges

## Explanation:

Box 1: Knowledge mining -

You can use Azure Cognitive Search's knowledge mining results and populate your knowledge base of your chatbot.

Box 2: Computer vision -

Box 3: Natural language processing

Natural language processing (NLP) is used for tasks such as sentiment analysis.

Reference:

<https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/natural-language-processing>

## Question: 26

CertyIQ

DRAG DROP -

Match the machine learning tasks to the appropriate scenarios.

To answer, drag the appropriate task from the column on the left to its scenario on the right. Each task may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.

Select and Place:

### Learning Types

Feature engineering

Feature selection

Model deployment

Model evaluation

Model training

### Answer Area

Task

Examining the values of a confusion matrix

Task

Splitting a date into month, day, and year fields

Task

Picking temperature and pressure to train a weather model

### Answer:

### Learning Types

Feature engineering

Feature selection

Model deployment

Model evaluation

Model training

### Answer Area

Model evaluation

Examining the values of a confusion matrix

Feature engineering

Splitting a date into month, day, and year fields

Feature selection

Picking temperature and pressure to train a weather model

### Explanation:

Box 1: Model evaluation -

The Model evaluation module outputs a confusion matrix showing the number of true positives, false negatives, false positives, and true negatives, as well as ROC, Precision/Recall, and Lift curves.

Box 2: Feature engineering -

Feature engineering is the process of using domain knowledge of the data to create features that help ML algorithms learn better. In Azure Machine Learning, scaling and normalization techniques are applied to facilitate feature engineering. Collectively, these techniques and feature engineering are referred to as featurization.

Note: Often, features are created from raw data through a process of feature engineering. For example, a time stamp in itself might not be useful for modeling until the information is transformed into units of days, months, or categories that are relevant to the problem, such as holiday versus working day.

Box 3: Feature selection -

In machine learning and statistics, feature selection is the process of selecting a subset of relevant, useful features to use in building an analytical model. Feature selection helps narrow the field of data to the most valuable inputs. Narrowing the field of data helps reduce noise and improve training performance.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio/evaluate-model-performance> <https://docs.microsoft.com/en-us/azure/machine-learning/concept-automated-ml>

### Question: 27

CertyIQ

HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

#### Answer Area

Data values that influence the prediction of a model are called

dependant variables.
features.
identifiers.
labels.

Answer:

#### Answer Area

Data values that influence the prediction of a model are called

dependant variables.
features.
identifiers.
labels.

Explanation:

Reference:

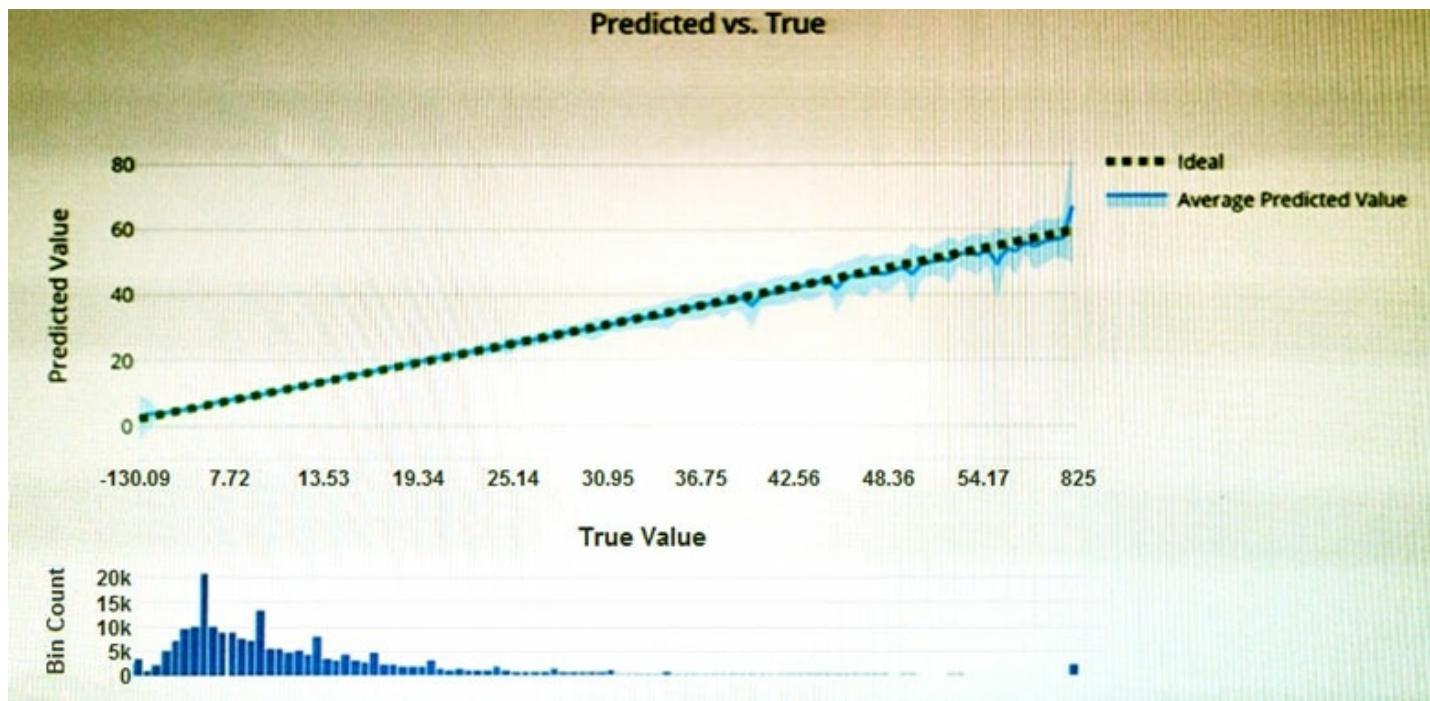
<https://www.baeldung.com/cs/feature-vs-label>

<https://machinelearningmastery.com/discover-feature-engineering-how-to-engineer-features-and-how-to-get-good-at-it/>

### Question: 28

CertyIQ

You have the Predicted vs. True chart shown in the following exhibit.



Which type of model is the chart used to evaluate?

- A. classification
- B. regression
- C. clustering

**Answer: B**

**Explanation:**

What is a Predicted vs. True chart?

Predicted vs. True shows the relationship between a predicted value and its correlating true value for a regression problem. This graph can be used to measure performance of a model as the closer to the  $y=x$  line the predicted values are, the better the accuracy of a predictive model.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-understand-automated-m>

**Question: 29**

**CertyIQ**

Which type of machine learning should you use to predict the number of gift cards that will be sold next month?

- A. classification
- B. regression
- C. clustering

**Answer: B**

**Explanation:**

In the most basic sense, regression refers to prediction of a numeric target.

Linear regression attempts to establish a linear relationship between one or more independent variables and a numeric outcome, or dependent variable.

You use this module to define a linear regression method, and then train a model using a labeled dataset. The trained model can then be used to make predictions.

Reference:

**Question: 30**

You have a dataset that contains information about taxi journeys that occurred during a given period. You need to train a model to predict the fare of a taxi journey. What should you use as a feature?

- A. the number of taxi journeys in the dataset
- B. the trip distance of individual taxi journeys
- C. the fare of individual taxi journeys
- D. the trip ID of individual taxi journeys

**Answer: B**

**Explanation:**

The label is the column you want to predict. The identified Features are the inputs you give the model to predict the Label.

Example:

The provided data set contains the following columns:

vendor\_id: The ID of the taxi vendor is a feature.

rate\_code: The rate type of the taxi trip is a feature.

passenger\_count: The number of passengers on the trip is a feature. trip\_time\_in\_secs: The amount of time the trip took. You want to predict the fare of the trip before the trip is completed. At that moment, you don't know how long the trip would take. Thus, the trip time is not a feature and you'll exclude this column from the model. trip\_distance: The distance of the trip is a feature. payment\_type: The payment method (cash or credit card) is a feature. fare\_amount: The total taxi fare paid is the label.

Reference:

<https://docs.microsoft.com/en-us/dotnet/machine-learning/tutorials/predict-prices>

**Question: 31**

You need to predict the sea level in meters for the next 10 years.

Which type of machine learning should you use?

- A. classification
- B. regression
- C. clustering

**Answer: B**

**Explanation:**

In the most basic sense, regression refers to prediction of a numeric target.

Linear regression attempts to establish a linear relationship between one or more independent variables and a numeric outcome, or dependent variable.

You use this module to define a linear regression method, and then train a model using a labeled dataset. The trained model can then be used to make predictions.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/linear-regression>

**Question: 32**

CertyIQ

HOTSPOT -

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

Statements	Yes	No
Automated machine learning is the process of automating the time-consuming, iterative tasks of machine learning model development.	<input type="radio"/>	<input type="radio"/>
Automated machine learning can automatically infer the training data from the use case provided.	<input type="radio"/>	<input type="radio"/>
Automated machine learning works by running multiple training iterations that are scored and ranked by the metrics you specify.	<input type="radio"/>	<input type="radio"/>
Automated machine learning enables you to specify a dataset and will automatically understand which label to predict.	<input type="radio"/>	<input type="radio"/>

**Answer:****Answer Area**

Statements	Yes	No
Automated machine learning is the process of automating the time-consuming, iterative tasks of machine learning model development.	<input checked="" type="radio"/>	<input type="radio"/>
Automated machine learning can automatically infer the training data from the use case provided.	<input type="radio"/>	<input checked="" type="radio"/>
Automated machine learning works by running multiple training iterations that are scored and ranked by the metrics you specify.	<input checked="" type="radio"/>	<input type="radio"/>
Automated machine learning enables you to specify a dataset and will automatically understand which label to predict.	<input type="radio"/>	<input checked="" type="radio"/>

**Explanation:**

Box 1: Yes -

Automated machine learning, also referred to as automated ML or AutoML, is the process of automating the time consuming, iterative tasks of machine learning model development. It allows data scientists, analysts, and developers to build ML models with high scale, efficiency, and productivity all while sustaining model quality.

Box 2: No -

Box 3: Yes -

During training, Azure Machine Learning creates a number of pipelines in parallel that try different algorithms

and parameters for you. The service iterates through ML algorithms paired with feature selections, where each iteration produces a model with a training score. The higher the score, the better the model is considered to "fit" your data. It will stop once it hits the exit criteria defined in the experiment.

Box 4: No -

Apply automated ML when you want Azure Machine Learning to train and tune a model for you using the target metric you specify.

The label is the column you want to predict.

Reference:

<https://azure.microsoft.com/en-us/services/machine-learning/automatedml/#features>

### Question: 33

CertyIQ

HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

### Answer Area

A banking system that predicts whether a loan will be repaid is an example of the  type of machine learning.

classification
regression
clustering

Answer:

### Answer Area

A banking system that predicts whether a loan will be repaid is an example of the  type of machine learning.

classification
regression
clustering

Explanation:

Two-class classification provides the answer to simple two-choice questions such as Yes/No or True/False.

**classification** as the prediction whether the loan will be repaid or not -- whether means class - categorical answer as yes or no - hence classification

**Question: 34**

CertyIQ

HOTSPOT -

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

Statements	Yes	No
Labelling is the process of tagging training data with known values.	<input type="radio"/>	<input type="radio"/>
You should evaluate a model by using the same data used to train the model.	<input type="radio"/>	<input type="radio"/>
Accuracy is always the primary metric used to measure a model's performance.	<input type="radio"/>	<input type="radio"/>

**Answer:****Answer Area**

Statements	Yes	No
Labelling is the process of tagging training data with known values.	<input checked="" type="radio"/>	<input type="radio"/>
You should evaluate a model by using the same data used to train the model.	<input type="radio"/>	<input checked="" type="radio"/>
Accuracy is always the primary metric used to measure a model's performance.	<input type="radio"/>	<input checked="" type="radio"/>

**Explanation:**

Box 1: Yes -

In machine learning, if you have labeled data, that means your data is marked up, or annotated, to show the target, which is the answer you want your machine learning model to predict.

In general, data labeling can refer to tasks that include data tagging, annotation, classification, moderation, transcription, or processing.

Box 2: No -

Box 3: No -

Accuracy is simply the proportion of correctly classified instances. It is usually the first metric you look at when evaluating a classifier. However, when the test data is unbalanced (where most of the instances belong to one of the classes), or you are more interested in the performance on either one of the classes, accuracy doesn't really capture the effectiveness of a classifier.

**Reference:**<https://www.cloudfactory.com/data-labeling-guide><https://docs.microsoft.com/en-us/azure/machine-learning/studio/evaluate-model-performance>

**Question: 35**

CertyIQ

Which service should you use to extract text, key/value pairs, and table data automatically from scanned documents?

- A. Form Recognizer
- B. Text Analytics
- C. Language Understanding
- D. Custom Vision

**Answer: A****Explanation:**

Accelerate your business processes by automating information extraction. Form Recognizer applies advanced machine learning to accurately extract text, key/ value pairs, and tables from documents. With just a few samples, Form Recognizer tailors its understanding to your documents, both on-premises and in the cloud. Turn forms into usable data at a fraction of the time and cost, so you can focus more time acting on the information rather than compiling it.

**Reference:**

<https://azure.microsoft.com/en-us/services/cognitive-services/form-recognizer/>

**Question: 36**

CertyIQ

HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

**Answer Area**

The ability to extract subtotals and totals from a receipt is a capability of the

Custom Vision
Form Recognizer
Ink Recognizer
Text Analytics

**Answer:****Answer Area**

The ability to extract subtotals and totals from a receipt is a capability of the

Custom Vision
Form Recognizer
Ink Recognizer
Text Analytics

**Explanation:**

Accelerate your business processes by automating information extraction. Form Recognizer applies advanced

machine learning to accurately extract text, key/ value pairs, and tables from documents. With just a few samples, Form Recognizer tailors its understanding to your documents, both on-premises and in the cloud. Turn forms into usable data at a fraction of the time and cost, so you can focus more time acting on the information rather than compiling it.

Reference:

<https://azure.microsoft.com/en-us/services/cognitive-services/form-recognizer/>

CertyIQ

### Question: 37

You use Azure Machine Learning designer to publish an inference pipeline.

Which two parameters should you use to access the web service? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- A. the model name
- B. the training endpoint
- C. the authentication key
- D. the REST endpoint

### Answer: CD

#### Explanation:

You can consume a published pipeline in the Published pipelines page. Select a published pipeline and find the REST endpoint of it.

To consume the pipeline, you need:

- ⇒ The REST endpoint for your service
- ⇒ The Primary Key for your service

Reference:

<https://docs.microsoft.com/en-in/learn/modules/create-regression-model-azure-machine-learning-designer/deploy-service>

CertyIQ

### Question: 38

HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

#### Answer Area

From Azure Machine Learning designer, to deploy a real-time inference pipeline as a service for others to consume, you must deploy the model to

a local web service.
Azure Container Instances.
Azure Kubernetes Service (AKS).
Azure Machine Learning compute.

**Answer:**

### **Answer Area**

From Azure Machine Learning designer, to deploy a real-time inference pipeline as a service for others to consume, you must deploy the model to

- a local web service.
- Azure Container Instances.
- Azure Kubernetes Service (AKS).**
- Azure Machine Learning compute.

### **Explanation:**

For Prod - AKS and for Dev/Test - use Azure Container Service

To perform real-time inferencing, you must deploy a pipeline as a real-time endpoint.

Real-time endpoints must be deployed to an Azure Kubernetes Service cluster.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/concept-designer#deploy>

### **Question: 39**

CertyIQ

HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

### **Answer Area**

Predicting how many hours of overtime a delivery person will work based on the number of order received is an example of

- classification.
- clustering.
- regression.**

**Answer:**

## Answer Area

Predicting how many hours of overtime a delivery person will work based on the number of orders received is an example of

classification.
clustering.
regression.

### Explanation:

In the most basic sense, regression refers to prediction of a numeric target.

Linear regression attempts to establish a linear relationship between one or more independent variables and a numeric outcome, or dependent variable.

You use this module to define a linear regression method, and then train a model using a labeled dataset. The trained model can then be used to make predictions.

### Incorrect Answers:

- ⇒ Classification is a machine learning method that uses data to determine the category, type, or class of an item or row of data.
- ⇒ Clustering, in machine learning, is a method of grouping data points into similar clusters. It is also called segmentation.

Over the years, many clustering algorithms have been developed. Almost all clustering algorithms use the features of individual items to find similar items. For example, you might apply clustering to find similar people by demographics. You might use clustering with text analysis to group sentences with similar topics or sentiment.

### Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/algorithm-module-reference/linear-regression> <https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/machine-learning-initialize-model-clustering>

## Question: 40

CertyIQ

HOTSPOT -

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

## Answer Area

Statements	Yes	No
Azure Machine Learning designer provides a drag-and-drop visual canvas to build, test, and deploy machine learning models.	<input type="radio"/>	<input type="radio"/>
Azure Machine Learning designer enables you to save your progress as a pipeline draft.	<input type="radio"/>	<input type="radio"/>
Azure Machine Learning designer enables you to include custom JavaScript functions.	<input type="radio"/>	<input type="radio"/>

Answer:

## Answer Area

Statements	Yes	No
Azure Machine Learning designer provides a drag-and-drop visual canvas to build, test, and deploy machine learning models.	<input checked="" type="radio"/>	<input type="radio"/>
Azure Machine Learning designer enables you to save your progress as a pipeline draft.	<input checked="" type="radio"/>	<input type="radio"/>
Azure Machine Learning designer enables you to include custom JavaScript functions.	<input type="radio"/>	<input checked="" type="radio"/>

### Explanation:

Box 1: Yes -

Azure Machine Learning designer lets you visually connect datasets and modules on an interactive canvas to create machine learning models.

Box 2: Yes -

With the designer you can connect the modules to create a pipeline draft.

As you edit a pipeline in the designer, your progress is saved as a pipeline draft.

Box 3: No -

### Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/concept-designer>

## Question: 41

HOTSPOT -

You have the following dataset.

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Household Income	Postal Code	House Price Category
20,000	55555	Low
23,000	20541	Middle
80,000	87960	High

You plan to use the dataset to train a model that will predict the house price categories of houses. What are Household Income and House Price Category? To answer, select the appropriate option in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

## Answer Area

Household Income:

A feature  
 A label

House Price Category:

A feature  
 A label

Answer:

## Answer Area

Household Income:

A feature  
 A label

House Price Category:

A feature  
 A label

Explanation:

Feature = Input. Label = Output.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio/interpret-model-results>

**HOTSPOT -**

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

**Answer Area**

Azure Machine Learning designer lets you create machine learning models by

- adding and connecting modules on a visual canvas.
- automatically performing common data preparation tasks.
- automatically selecting an algorithm to build the most accurate model.
- using a code-first notebook experience.

Answer:

**Answer Area**

Azure Machine Learning designer lets you create machine learning models by

- adding and connecting modules on a visual canvas.
- automatically performing common data preparation tasks.
- automatically selecting an algorithm to build the most accurate model.
- using a code-first notebook experience.

Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/concept-designer>

**Question: 43**

CertyIQ

**HOTSPOT -**

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

## Answer Area

Statements	Yes	No
Automated machine learning provides you with the ability to include custom Python scripts in a training pipeline.	<input type="radio"/>	<input type="radio"/>
Automated machine learning implements machine learning solutions without the need for programming experience.	<input type="radio"/>	<input type="radio"/>
Automated machine learning provides you with the ability to visually connect datasets and modules on an interactive canvas.	<input type="radio"/>	<input type="radio"/>

Answer:

## Answer Area

Statements	Yes	No
Automated machine learning provides you with the ability to include custom Python scripts in a training pipeline.	<input type="radio"/>	<input checked="" type="radio"/>
Automated machine learning implements machine learning solutions without the need for programming experience.	<input checked="" type="radio"/>	<input type="radio"/>
Automated machine learning provides you with the ability to visually connect datasets and modules on an interactive canvas.	<input type="radio"/>	<input checked="" type="radio"/>

Explanation:

No - Automated machine learning only requires you to choose between Python SDK and studio web experience.

Yes - Automated machine learning is a no code solution.

No - This is done in the Azure Machine Learning studio web experience.

Source: <https://docs.microsoft.com/en-us/azure/machine-learning/concept-automated-ml>

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-designer-python>  
<https://docs.microsoft.com/en-us/azure/machine-learning/concept-automated-ml>

## Question: 44

CertyIQ

A medical research project uses a large anonymized dataset of brain scan images that are categorized into predefined brain haemorrhage types.

You need to use machine learning to support early detection of the different brain haemorrhage types in the images before the images are reviewed by a person.  
This is an example of which type of machine learning?

- A. clustering
- B. regression
- C. classification

**Answer: C**

**Explanation:**

This is classification. There are multiple reasons it's classification

- The training data is already tagged as with the correct type of hemorrhage
- Classification can be done for more than two classes (which people seem to not realize based on the comments)
- You do clustering on a group of inputs. For example, the scans of 10 people. You can't cluster a single input. Clearly you get a new scan of a new patient and you want to know what that scan shows, you don't have a group of scans to cluster.
- Clustering gives NO labels. You just get groups and don't know what the label is, but in this question it's very clear they want to know the label that belongs to the new scan -> classification

**Reference:**

<https://docs.microsoft.com/en-us/learn/modules/create-classification-model-azure-machine-learning-designer/introduction>

**Question: 45**

**CertyIQ**

When training a model, why should you randomly split the rows into separate subsets?

- A. to train the model twice to attain better accuracy
- B. to train multiple models simultaneously to attain better performance
- C. to test the model by using data that was not used to train the model

**Answer: C**

**Explanation:**

First for training then evaluation.

He is referring to the famous `train_test_split` that everyone uses to split the dataset into train and test sets.

You lose statistical power by estimating on a subset n like 50 percent of original N. That's the price you pay for splitting data. For example a normally independently distributed (n.i.d)  $x$  has an estimator of arithmetic mean  $X$  whose variance inversely related to N. Bigger sample is better for accuracy of a simple arithmetic mean.

**Question: 46**

**CertyIQ**

You are evaluating whether to use a basic workspace or an enterprise workspace in Azure Machine Learning.

What are two tasks that require an enterprise workspace? Each correct answer presents a complete solution.  
NOTE: Each correct selection is worth one point.

- A. Use a graphical user interface (GUI) to run automated machine learning experiments.
- B. Create a compute instance to use as a workstation.
- C. Use a graphical user interface (GUI) to define and run machine learning experiments from Azure Machine Learning designer.
- D. Create a dataset from a comma-separated value (CSV) file.

**Answer: AC**

**Explanation:**

Note: Enterprise workspaces are no longer available as of September 2020. The basic workspace now has all the functionality of the enterprise workspace.

Reference:

<https://www.azure.cn/en-us/pricing/details/machine-learning/>

<https://docs.microsoft.com/en-us/azure/machine-learning/concept-workspace>

**Question: 47**

**CertyIQ**

You need to predict the income range of a given customer by using the following dataset.

First Name	Last Name	Age	Education Level	Income Range
Orlando	Gee	45	University	25,000-50,000
Keith	Harris	36	High school	25,000-50,000
Donna	Carreras	52	University	50,000-75,000
Janet	Gates	21	University	75,000-100,000
Lucy	Harrington	68	High school	50,000-75,000

Which two fields should you use as features? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- A. Education Level
- B. Last Name
- C. Age
- D. Income Range
- E. First Name

**Answer: AC**

**Explanation:**

First Name, Last Name, Age and Education Level are features. Income range is a label (what you want to predict). First Name and Last Name are irrelevant in that they have no bearing on income. Age and Education level are the features you should use.

**Question: 48**

**CertyIQ**

You are building a tool that will process images from retail stores and identify the products of competitors. The solution will use a custom model.

Which Azure Cognitive Services service should you use?

- A. Custom Vision
- B. Form Recognizer
- C. Face
- D. Computer Vision

**Answer: A**

**Explanation:**

Azure Custom Vision is an image recognition service that lets you build, deploy, and improve your own image identifier models. An image identifier applies labels (which represent classifications or objects) to images, according to their detected visual characteristics. Unlike the Computer Vision service, Custom Vision allows you to specify your own labels and train custom models to detect them.

**Reference:**

<https://docs.microsoft.com/en-us/azure/cognitive-services/custom-vision-service/overview>

**Question: 49**

**CertyIQ**

**HOTSPOT -**

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

Statements	Yes	No
Organizing documents into groups based on similarities of the text contained in the documents is an example of clustering.	<input type="radio"/>	<input type="radio"/>
Grouping similar patients based on symptoms and diagnostic test results is an example of clustering.	<input type="radio"/>	<input type="radio"/>
Predicting whether a person will develop mild, moderate, or severe allergy symptoms based on pollen count is an example of clustering.	<input type="radio"/>	<input type="radio"/>

**Answer:**

## Answer Area

Statements	Yes	No
Organizing documents into groups based on similarities of the text contained in the documents is an example of clustering.	<input checked="" type="radio"/>	<input type="radio"/>
Grouping similar patients based on symptoms and diagnostic test results is an example of clustering.	<input checked="" type="radio"/>	<input type="radio"/>
Predicting whether a person will develop mild, moderate, or severe allergy symptoms based on pollen count is an example of clustering.	<input type="radio"/>	<input checked="" type="radio"/>

### Explanation:

Clustering is a machine learning task that is used to group instances of data into clusters that contain similar characteristics. Clustering can also be used to identify relationships in a dataset

Regression is a machine learning task that is used to predict the value of the label from a set of related features.

### Reference:

<https://docs.microsoft.com/en-us/dotnet/machine-learning/resources/tasks>

CertyIQ

## Question: 50

HOTSPOT -

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

## Answer Area

Statements	Yes	No
A validation set includes the set of input examples that will be used to train a mode.	<input type="radio"/>	<input checked="" type="radio"/>
A validation set can be used to determine how well a model predicts labels.	<input type="radio"/>	<input checked="" type="radio"/>
A validation set can be used to verify that all the training data was used to train the model.	<input checked="" type="radio"/>	<input type="radio"/>

### Answer:

## Answer Area

Statements	Yes	No
A validation set includes the set of input examples that will be used to train a mode.	<input type="radio"/>	<input checked="" type="radio"/>
A validation set can be used to determine how well a model predicts labels.	<input checked="" type="radio"/>	<input type="radio"/>
A validation set can be used to verify that all the training data was used to train the model.	<input type="radio"/>	<input checked="" type="radio"/>

### Explanation:

Box 1: No -

The validation dataset is different from the test dataset that is held back from the training of the model.

Box 2: Yes -

A validation dataset is a sample of data that is used to give an estimate of model skill while tuning model's hyperparameters.

Box 3: No -

The Test Dataset, not the validation set, used for this. The Test Dataset is a sample of data used to provide an unbiased evaluation of a final model fit on the training dataset.

### Reference:

<https://machinelearningmastery.com/difference-test-validation-datasets/>

## Question: 51

CertyIQ

What are two metrics that you can use to evaluate a regression model? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- A. coefficient of determination (R2)
- B. F1 score
- C. root mean squared error (RMSE)
- D. area under curve (AUC)
- E. balanced accuracy

### Answer: AC

### Explanation:

**Small Tip:** If its Regression model then remembers 'R' and the corresponding answer will be R2 and RMSE.

A: R-squared (R2), or Coefficient of determination represents the predictive power of the model as a value between -inf and 1.00. 1.00 means there is a perfect fit, and the fit can be arbitrarily poor so the scores can be negative.

C: RMS-loss or Root Mean Squared Error (RMSE) (also called Root Mean Square Deviation, RMSD), measures the difference between values predicted by a model and the values observed from the environment that is

being modeled.

Incorrect Answers:

B: F1 score also known as balanced F-score or F-measure is used to evaluate a classification model.

D: aucROC or area under the curve (AUC) is used to evaluate a classification model.

Reference:

<https://docs.microsoft.com/en-us/dotnet/machine-learning/resources/metrics>

### Question: 52

CertyIQ

HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

### Answer Area

Predicting how many vehicles will travel across a bridge on a given day is  
an example of

classification.
clustering.
regression.

Answer:

### Answer Area

Predicting how many vehicles will travel across a bridge on a given day is  
an example of

classification.
clustering.
regression.

Explanation:

Regression is a machine learning task that is used to predict the value of the label from a set of related features.

Reference:

<https://docs.microsoft.com/en-us/dotnet/machine-learning/resources/tasks>

### Question: 53

CertyIQ

DRAG DROP -

You need to use Azure Machine Learning designer to build a model that will predict automobile prices. Which type of modules should you use to complete the model? To answer, drag the appropriate modules to the correct locations. Each module may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:

**Modules**

Convert to CSV

K-Means Clustering

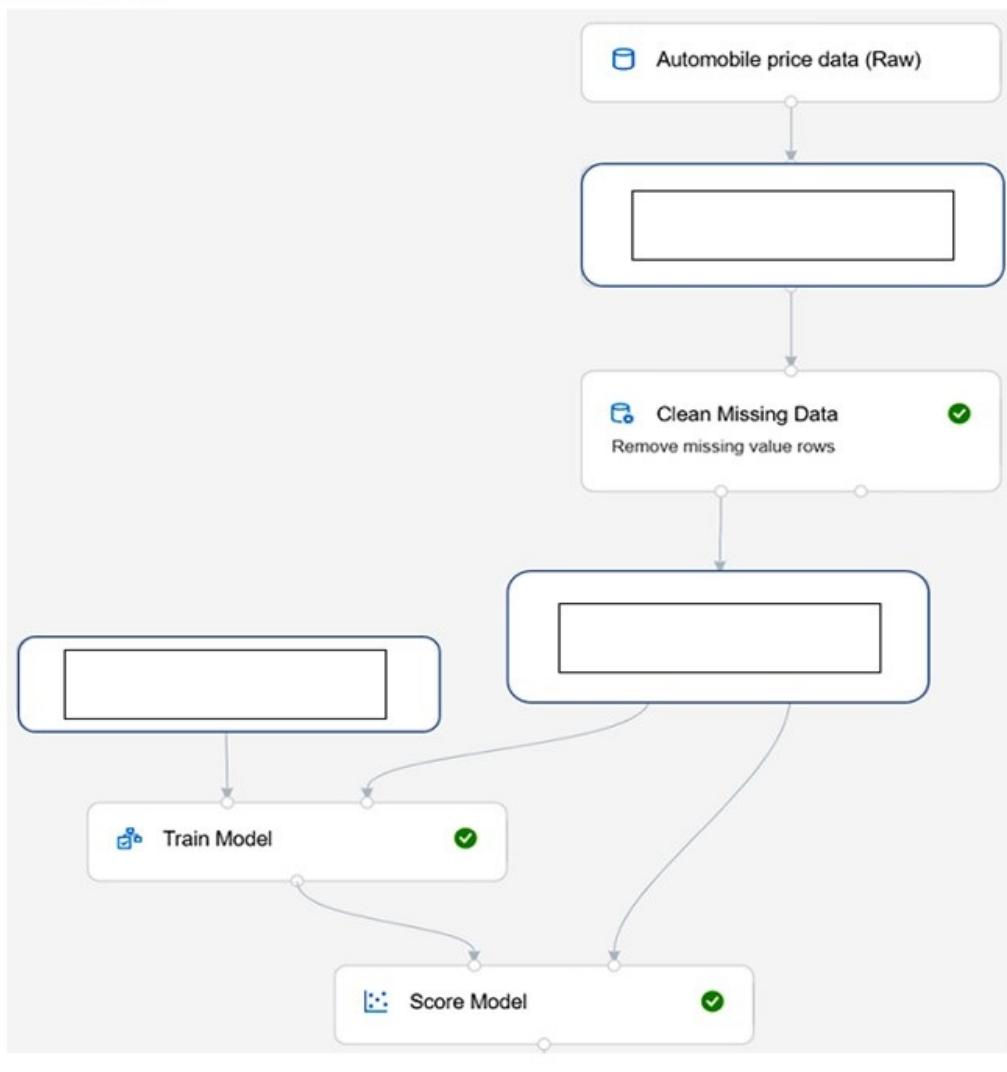
Linear Regression

Split Data

Select Columns in Dataset

Summarize Data

**Answer Area**



**Answer:**

## Modules

Convert to CSV

K-Means Clustering

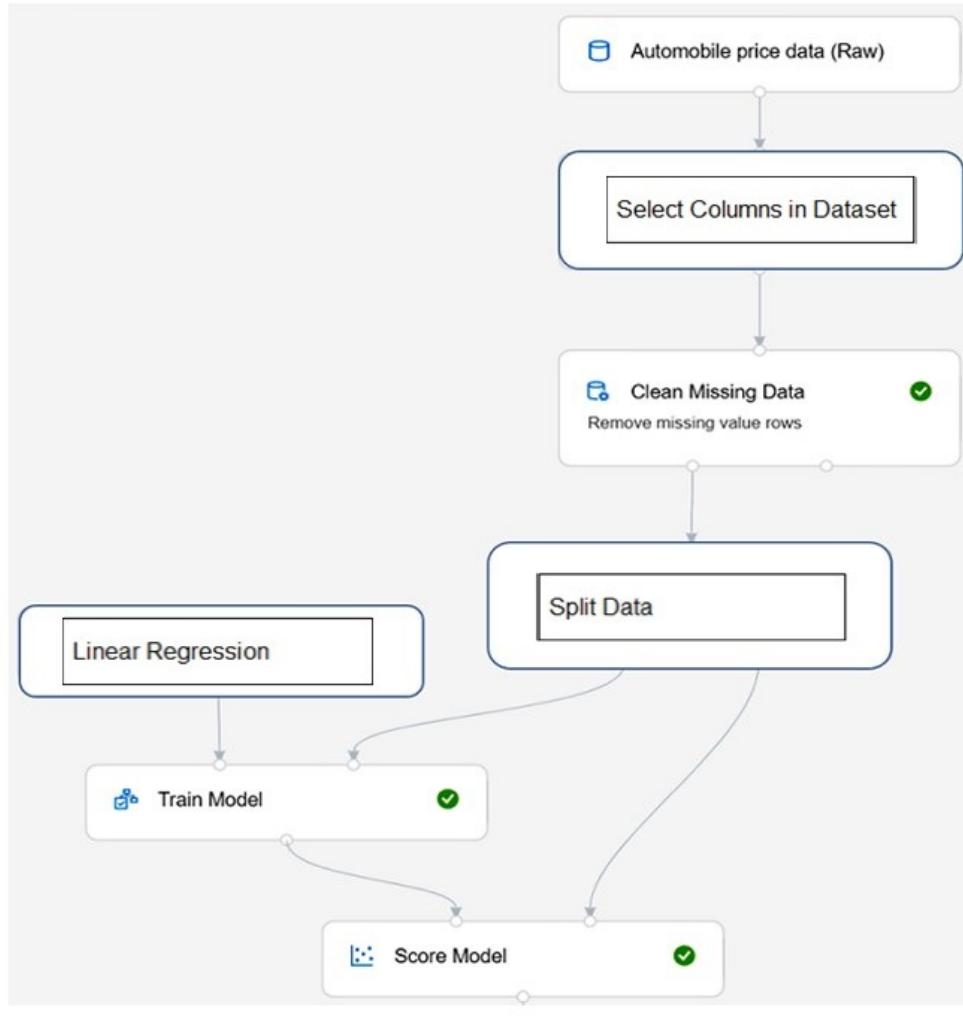
Linear Regression

Split Data

Select Columns in Dataset

Summarize Data

## Answer Area



### Explanation:

Box 1: Select Columns in Dataset

For Columns to be cleaned, choose the columns that contain the missing values you want to change. You can choose multiple columns, but you must use the same replacement method in all selected columns.

Example:

## Automobile price data (Raw)



### Select Columns in Dataset

Exclude normalized losses



### Clean Missing Data

Remove missing value rows

#### Box 2: Split data -

Splitting data is a common task in machine learning. You will split your data into two separate datasets. One dataset will train the model and the other will test how well the model performed.

#### Box 3: Linear regression -

Because you want to predict price, which is a number, you can use a regression algorithm. For this example, you use a linear regression model.

#### Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/tutorial-designer-automobile-price-train-score>

### Question: 54

CertyIQ

Which type of machine learning should you use to identify groups of people who have similar purchasing habits?

- A. classification
- B. regression
- C. clustering

#### Answer: C

#### Explanation:

Clustering is a machine learning task that is used to group instances of data into clusters that contain similar characteristics. Clustering can also be used to identify relationships in a dataset

Reference:

<https://docs.microsoft.com/en-us/dotnet/machine-learning/resources/tasks>

### Question: 55

CertyIQ

HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

#### Answer Area

Classification
Clustering
Regression

models can be used to predict the sale price of auctioned items.

Answer:

#### Answer Area

Classification
Clustering
Regression

models can be used to predict the sale price of auctioned items.

Explanation:

Regression is a machine learning task that is used to predict the value of the label from a set of related features.

Reference:

<https://docs.microsoft.com/en-us/dotnet/machine-learning/resources/tasks>

### Question: 56

CertyIQ

Which metric can you use to evaluate a classification model?

- A. true positive rate
- B. mean absolute error (MAE)
- C. coefficient of determination (R<sup>2</sup>)
- D. root mean squared error (RMSE)

Answer: A

Explanation:

What does a good model look like?

An ROC curve that approaches the top left corner with 100% true positive rate and 0% false positive rate will

be the best model. A random model would display as a flat line from the bottom left to the top right corner. Worse than random would dip below the  $y=x$  line.

MAE, RMSE and R2 are metrics for regression:

<https://docs.microsoft.com/en-us/azure/machine-learning/algorithm-module-reference/evaluate-model>

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-understand-automated-ml#classification>

## Question: 57

CertyIQ

Which two components can you drag onto a canvas in Azure Machine Learning designer? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- A. dataset
- B. compute
- C. pipeline
- D. module

### Answer: AD

#### Explanation:

You can drag-and-drop datasets and modules onto the canvas.

Azure Machine Learning designer lets you visually connect datasets and modules on an interactive canvas to create machine learning models.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/concept-designer>

## Question: 58

CertyIQ

You need to create a training dataset and validation dataset from an existing dataset.  
Which module in the Azure Machine Learning designer should you use?

- A. Select Columns in Dataset
- B. Add Rows
- C. Split Data
- D. Join Data

### Answer: C

#### Explanation:

A common way of evaluating a model is to divide the data into a training and test set by using Split Data, and then validate the model on the training data.

Use the Split Data module to divide a dataset into two distinct sets.

The studio currently supports training/validation data splits

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-configure-cross-validation-data-splits>

## Question: 59

CertyIQ

DRAG DROP -

Match the types of machine learning to the appropriate scenarios.

To answer, drag the appropriate machine learning type from the column on the left to its scenario on the right.

Each machine learning type may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.

Select and Place:

Learning Types	Answer Area	
Classification	Learning Type	Predict how many minutes late a flight will arrive based on the amount of snowfall at an airpot.
Clustering	Learning Type	Segment customers into different groups to support a marketing department.
Regression	Learning Type	Predict whether a student will complete a university course.

## Answer:

Learning Types	Answer Area	
Classification	Regression	Predict how many minutes late a flight will arrive based on the amount of snowfall at an airpot.
Clustering	Clustering	Segment customers into different groups to support a marketing department.
Regression	Classification	Predict whether a student will complete a university course.

## Explanation:

Box 1: Regression -

In the most basic sense, regression refers to prediction of a numeric target.

Linear regression attempts to establish a linear relationship between one or more independent variables and a numeric outcome, or dependent variable.

You use this module to define a linear regression method, and then train a model using a labeled dataset. The trained model can then be used to make predictions.

Box 2: Clustering -

Clustering, in machine learning, is a method of grouping data points into similar clusters. It is also called segmentation.

Over the years, many clustering algorithms have been developed. Almost all clustering algorithms use the features of individual items to find similar items. For example, you might apply clustering to find similar people by demographics. You might use clustering with text analysis to group sentences with similar topics or sentiment.

Box 3: Classification -

Two-class classification provides the answer to simple two-choice questions such as Yes/No or True/False.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/linear-regression>

**Question: 60**

CertyIQ

HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

**Answer Area**

▼	
Accuracy	
Confidence	
Root Mean Square Error	
Sentiment	

is the calculated probability of a correct image classification.

**Answer:****Answer Area****Answer Area**

▼	
Accuracy	
Confidence	
Root Mean Square Error	
Sentiment	

is the calculated probability of a correct image classification.

**Explanation:**

Confidence is the right answer.

..."The probability score of the object classification (which you can interpret as the confidence of the predicted class being correct)"...

Source: <https://docs.microsoft.com/en-us/learn/modules/detect-objects-images-custom-vision/1a-what-is-object-detection>

**Reference:**

<https://docs.microsoft.com/en-us/azure/cognitive-services/custom-vision-service/getting-started-build-a-classifier>

**Question: 61**

CertyIQ

HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

## Answer Area

Ensuring an AI system does not provide a prediction when important fields contain unusual or missing values is ▼ principle for responsible AI.

- an inclusiveness
- a privacy and security
- a reliability and safety
- a transparency

Answer:

## Answer Area

Ensuring an AI system does not provide a prediction when important fields contain unusual or missing values is ▼ principle for responsible AI.

- an inclusiveness
- a privacy and security
- a reliability and safety
- a transparency

Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai>

## Question: 62

CertyIQ

HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

## Answer Area

Ensuring that the numeric variables in training data are on a similar scale is an example of

- ▼
- data ingestion.
- feature engineering.
- feature selection.
- model training.

Answer:

## Answer Area

Ensuring that the numeric variables in training data are on a similar scale is an example of

- ▼
- data ingestion.
- feature engineering.
- feature selection.
- model training.

Explanation:

Feature engineering is the correct answer.

"In Azure Machine Learning, data-scaling and normalization techniques are applied to make feature engineering easier. Collectively, these techniques and this feature engineering are called featurization in automated ML experiments."

Feature selection is only about selection.

Modifying features = Feature engineering

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-configure-auto-features>

Reference:

<https://docs.microsoft.com/en-us/azure/architecture/data-science-process/create-features>

### Question: 63

CertyIQ

HOTSPOT -

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

#### Answer Area

Assigning classes to images before training a classification model is an example of

<input type="checkbox"/>	▼
evaluation.	
feature engineering	
hyperparameter tuning.	
labeling.	

#### Answer:

#### Answer Area

Assigning classes to images before training a classification model is an example of

<input type="checkbox"/>	▼
evaluation.	
feature engineering	
hyperparameter tuning.	
labeling.	

#### Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-label-data>

### Question: 64

CertyIQ

HOTSPOT -

You have an Azure Machine Learning model that predicts product quality. The model has a training dataset that contains 50,000 records. A sample of the data is shown in the following table.

Date	Time	Mass (kg)	Temperature (C)	Quality Test
26/02/2021	15:31:07	2.108	62.5	Pass
26/02/2021	15:31:39	2.099	62.4	Pass
26/02/2021	02:32:21	2.098	66.4	Fail

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

## Answer Area

Statements	Yes	No
Mass (kg) is a feature.	<input type="radio"/>	<input type="radio"/>
Quality Test is a label.	<input type="radio"/>	<input type="radio"/>
Temperature (C) is a label.	<input type="radio"/>	<input type="radio"/>

Answer:

## Answer Area

Statements	Yes	No
Mass (kg) is a feature.	<input checked="" type="radio"/>	<input type="radio"/>
Quality Test is a label.	<input checked="" type="radio"/>	<input type="radio"/>
Temperature (C) is a label.	<input type="radio"/>	<input checked="" type="radio"/>

Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/component-reference/filter-based-feature-selection>

Question: 65

CertyIQ

HOTSPOT -

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

## Answer Area

Statements	Yes	No
You train a regression model by using unlabeled data.	<input type="radio"/>	<input type="radio"/>
The classification technique is used to predict sequential numerical data over time.	<input type="radio"/>	<input type="radio"/>
Grouping items by their common characteristics is an example of clustering.	<input type="radio"/>	<input type="radio"/>

Answer:

## Answer Area

Statements	Yes	No
You train a regression model by using unlabeled data.	<input type="radio"/>	<input checked="" type="radio"/>
The classification technique is used to predict sequential numerical data over time.	<input type="radio"/>	<input checked="" type="radio"/>
Grouping items by their common characteristics is an example of clustering.	<input checked="" type="radio"/>	<input type="radio"/>

Explanation:

Reference:

<https://docs.microsoft.com/en-us/learn/modules/create-regression-model-azure-machine-learning-designer/5-create-training-pipeline> <https://docs.microsoft.com/en-us/learn/modules/create-classification-model-azure-machine-learning-designer/introduction> <https://docs.microsoft.com/en-us/learn/modules/create-clustering-model-azure-machine-learning-designer/1-introduction>

## Question: 66

CertyIQ

Which two actions are performed during the data ingestion and data preparation stage of an Azure Machine Learning process? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- A. Calculate the accuracy of the model.
- B. Score test data by using the model.
- C. Combine multiple datasets.
- D. Use the model for real-time predictions.
- E. Remove records that have missing values.

Answer: CE

Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/concept-data-ingestion> <https://docs.microsoft.com/en-us/azure/architecture/data-science-process/prepare-data>

### Question: 67

CertyIQ

You need to predict the animal population of an area.

Which Azure Machine Learning type should you use?

- A. regression
- B. clustering
- C. classification

#### Answer: A

#### Explanation:

Regression is a supervised machine learning technique used to predict numeric values.

Reference:

<https://docs.microsoft.com/en-us/learn/modules/create-regression-model-azure-machine-learning-designer/1-introduction>

### Question: 68

CertyIQ

Which two languages can you use to write custom code for Azure Machine Learning designer? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- A. Python
- B. R
- C. C#
- D. Scala

#### Answer: AB

#### Explanation:

**Use Azure Machine Learning designer for customizing using Python and R code.**

"Build and train machine learning models with state-of-the art machine learning and deep learning algorithms, including those for computer vision, text analytics, recommendations, and anomaly detection. Drag and drop modules for no-code models or customize using Python and R code." as per the link given:

<https://azure.microsoft.com/en-us/products/machine-learning/designer/#features>

Reference:

<https://azure.microsoft.com/en-us/services/machine-learning/designer/#features>

### Question: 69

CertyIQ

HOTSPOT -

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

## Answer Area

Statements	Yes	No
For a regression model, labels must be numeric.	<input type="radio"/>	<input type="radio"/>
For a clustering model, labels must be used.	<input type="radio"/>	<input type="radio"/>
For a classification model, labels must be numeric.	<input type="radio"/>	<input type="radio"/>

Answer:

## Answer Area

Statements	Yes	No
For a regression model, labels must be numeric.	<input checked="" type="radio"/>	<input type="radio"/>
For a clustering model, labels must be used.	<input type="radio"/>	<input checked="" type="radio"/>
For a classification model, labels must be numeric.	<input type="radio"/>	<input checked="" type="radio"/>

Explanation:

Box 1: Yes -

For regression problems, the label column must contain numeric data that represents the response variable. Ideally the numeric data represents a continuous scale.

Box 2: No -

K-Means Clustering -

Because the K-means algorithm is an unsupervised learning method, a label column is optional.

If your data includes a label, you can use the label values to guide selection of the clusters and optimize the model.

If your data has no label, the algorithm creates clusters representing possible categories, based solely on the data.

Box 3: No -

For classification problems, the label column must contain either categorical values or discrete values. Some examples might be a yes/no rating, a disease classification code or name, or an income group. If you pick a noncategorical column, the component will return an error during training.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/component-reference/train-model> <https://docs.microsoft.com/en-us/azure/machine-learning/component-reference/k-means-clustering>

Your company wants to build a recycling machine for bottles. The recycling machine must automatically identify bottles of the correct shape and reject all other items.  
Which type of AI workload should the company use?

- A. anomaly detection
- B. conversational AI
- C. computer vision
- D. natural language processing

**Answer: C**

**Explanation:**

Azure's Computer Vision service gives you access to advanced algorithms that process images and return information based on the visual features you're interested in. For example, Computer Vision can determine whether an image contains adult content, find specific brands or objects, or find human faces.

**Reference:**

<https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/overview>

**Question: 71**

**CertyIQ**

HOTSPOT -

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

Statements	Yes	No
When creating an object detection model in the Custom Vision service, you must choose a classification type of either <b>Multilabel</b> or <b>Multiclass</b> .	<input type="radio"/>	<input type="radio"/>
You can create an object detection model in the Custom Vision service to find the location of content within an image.	<input type="radio"/>	<input type="radio"/>
When creating an object detection model in the Custom Vision service, you can select from a set of predefined domains.	<input type="radio"/>	<input type="radio"/>

**Answer:**

## Answer Area

Statements	Yes	No
When creating an object detection model in the Custom Vision service, you must choose a classification type of either <b>Multilabel</b> or <b>Multiclass</b> .	<input type="radio"/>	<input checked="" type="radio"/>
You can create an object detection model in the Custom Vision service to find the location of content within an image.	<input checked="" type="radio"/>	<input type="radio"/>
When creating an object detection model in the Custom Vision service, you can select from a set of predefined domains.	<input checked="" type="radio"/>	<input type="radio"/>

### Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/custom-vision-service/get-started-build-detector>

## Question: 72

CertyIQ

In which two scenarios can you use the Form Recognizer service? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- A. Extract the invoice number from an invoice.
- B. Translate a form from French to English.
- C. Find image of product in a catalog.
- D. Identify the retailer from a receipt.

### Answer: AD

### Explanation:

Reference:

<https://azure.microsoft.com/en-gb/services/cognitive-services/form-recognizer/#features>

## Question: 73

CertyIQ

HOTSPOT -

Select the answer that correctly completes the sentence.

Hot Area:

## Answer Area

Counting the number of animals in an area based on a video feed is an example of

- forecasting.
- computer vision.
- conversational AI.
- anomaly detection.

Answer:

## Answer Area

Counting the number of animals in an area based on a video feed is an example of

- forecasting.
- computer vision.
- conversational AI.
- anomaly detection.

Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/overview> <https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/intro-to-spatial-analysis-public-preview>

## Question: 74

CertyIQ

HOTSPOT -

You have a database that contains a list of employees and their photos.

You are tagging new photos of the employees.

For each of the following statements select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

## Answer Area

Statements	Yes	No
The Face service can be used to perform facial recognition for employees	<input type="radio"/>	<input type="radio"/>
The Face service will be more accurate if you provide more sample photos of each employee from different angles.	<input type="radio"/>	<input type="radio"/>
If an employee is wearing sunglasses, the Face service will always fail to recognize the employee.	<input type="radio"/>	<input type="radio"/>

Answer:

## Answer Area

Statements	Yes	No
The Face service can be used to perform facial recognition for employees	<input checked="" type="radio"/>	<input type="radio"/>
The Face service will be more accurate if you provide more sample photos of each employee from different angles.	<input checked="" type="radio"/>	<input type="radio"/>
If an employee is wearing sunglasses, the Face service will always fail to recognize the employee.	<input type="radio"/>	<input checked="" type="radio"/>

Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/face/overview> <https://docs.microsoft.com/en-us/azure/cognitive-services/face/concepts/face-detection>

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